



IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please AMEND claims 1-12 in accordance with the following:

1. (CURRENTLY AMENDED) A RAID controller, which accesses an access request area on logical volumes distributed and stored on a plurality of physical disks according to a disk access request from a host device, comprising:

a plurality of physical disk groups ~~which are in charge of storing~~ different logical volumes, ~~respectively where~~ wherein one logical volume is distributed to a plurality of physical disks to form a plurality of redundant groups;

A1 a plurality of management modules ~~which are in charge of plurality of managing said plurality of redundant groups respectively~~ included on said plurality of physical disks, and issuing a logical format processing request for logical formatting of each said disk access request area of each of said logical volume distributed to said plurality of physical disks forming said redundant groups, by referring to one of a plurality of management table ~~tables~~ for managing progress information of ~~the said~~ logical format ~~processing~~ of each of said logical volume distributed to said plurality of physical disks forming said redundant groups; and

a plurality of lower layer modules for accessing said one of plurality of physical disk disks according to the processing of said logical format processing request of said plurality of management ~~module~~ modules,

wherein each said management module ~~has~~ comprising:

~~a~~ plurality of said management table ~~tables for being in charge of managing~~ said plurality of redundant groups; and

a queue ~~for queuing~~ said disk access request, and

wherein each said ^{physical input} management module, according to said disk access request, judges ^{21 (↑7)} whether ~~all the~~ each of said access request ~~areas have~~ area has been logically formatted referring to one of said plurality of said management table ~~tables~~, and when judged as formatted, requests each of said disk access request to said plurality of lower layer module ~~modules~~, and when not formatted, issues a logical format processing request and queues said disk access request in said queue, and ^(↑9)

wherein when no disk access request exists in said queue, searches an unformatted area from one of said plurality of said management table~~tables~~, and issues a logical format processing request to ^{by a} plurality of lower layer module~~modules~~.

2. (CURRENTLY AMENDED) The RAID controller according to ~~Claim~~claim 1, wherein, when one of said plurality of management module~~modules~~ has an abnormality, another one of said plurality of management module~~modules~~ executes the said logical format processing for each said disk access request area of each of said logical volume, distributed to said plurality of physical disks forming said redundant groups managed ~~of the physical disk group charged by said by one of said plurality of management module~~modules.

A1 3. (CURRENTLY AMENDED) The RAID controller according to ~~Claim~~claim 1, further comprising a RAID management module for restoring said management table of ~~the one of said plurality of physical disk group~~groups which one of said plurality of management module ~~is in-charge of~~modules manages in a management module of said plurality of management module~~modules other than said logical format management module~~ using a management table of another of said plurality of management modules when the one of said plurality of management modules has an abnormality. ~~other than said one logical format management module using a management table of another management module when said one management module has an abnormality.~~

4. (CURRENTLY AMENDED) The RAID controller according to ~~Claim~~claim 3, wherein said RAID management module executes said restoration referring to a configuration table where ~~the~~a RAID configuration is stored.

5. (CURRENTLY AMENDED) The RAID controller according to ~~Claim~~claim 1, wherein said one of said plurality of management table~~tables~~ manages the progress status of said logical volume in logical format processing units by bit maps.

6. (CURRENTLY AMENDED) The RAID controller according to ~~Claim 4~~claim 5, wherein said one of said plurality of management module~~modules~~, updates said one of plurality of management table~~tables~~ for managing said progress information at the completion of ~~execution of said logical format processing request from said lower layer module, and searches said queue at the completion of execution of said logical format processing request, and issues said disk~~

access request, for which said logical format processing request has completed, ~~to said lower layer module.~~

7. (CURRENTLY AMENDED) A RAID control method for accessing an access request area of a plurality of physical disk groups ~~which are in charge of including~~ ^{of said different logical volumes} different logical volumes, ~~respectively~~ where one logical volume is distributed to a plurality of physical disks to form redundant groups, according to a disk access request from a host device, comprising:

~~a step of~~ issuing a logical format processing request for the logical format of each area of said ^{over} logical volume referring to a management table for managing the progress information of the logical format processing of said ^{or} logical volume;

~~a step of~~ judging whether all of said access request areas have been logically formatted ~~or not~~ by referring to said management table according to said disk access request;

~~a step of~~ requesting said disk access request to a lower layer module which accesses said physical disk when judged as formatted;

~~a step of~~ issuing said logical format processing request and queuing said disk access request to a queue when not formatted; and

~~a step of~~ updating said management table having redundancy according to ~~the~~ completion notice of the processing of said logical format ~~processing~~ from said lower layer module.

8. (CURRENTLY AMENDED) The RAID control method according to ~~Claim~~ claim 7, further comprising ~~a step of~~ executing a said logical formatting of said physical disk group disks, ¹¹² ~~which wherein~~ ^{a first} one logical format management module is in charge of ~~by~~ ^{a second} manages another logical format management module when said ^{first} one logical format management module has an abnormality.

9. (CURRENTLY AMENDED) The RAID control method according to ~~Claim~~ claim 7, further comprising ~~a step of~~ restoring the management table of the physical disk group said physical disks, which wherein one logical format management module is in charge of manages another in a logical format management module other than said one logical format management module using a said management table of another logical format management module, when said one logical format management module has an abnormality. ¹¹²

10. (CURRENTLY AMENDED) The RAID control method according to ~~Claim~~ claim 9,

wherein said ~~restoration step~~ restoring comprises ~~a step of~~ executing said ~~restoration~~ restoring by referring to a configuration table where ~~the~~ a RAID configuration is described.

A1 11. (CURRENTLY AMENDED) The RAID control method according to ~~Claim~~ claim 7, wherein said management table manages the progress status of said logical volume in logical format processing units by bit maps.

12. (CURRENTLY AMENDED) The RAID control method according to ~~Claim~~ claim 7, further comprising:

~~a step of~~ searching said queue at the completion of execution of said logical format processing request; and

~~a step of~~ issuing said disk access request for which said logical format has completed to said lower layer module.

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